

Problem 15. What is the sum of the digits in the decimal representation of $(10^{10} + 1)^2$?

- (A.) 1
- (B.) 2
- (C.) 4
- (D.) 8
- (E.) none of these

By looking at small powers of 10, observe the following pattern:

$$(10000000001)^2 = 1(\text{zeros})2(\text{zeros})1.$$

~ Desserts ~

Problem 16. Beginning with 1, write all positive integers successively, beginning as 12345678910111213 ...

What digit appears in the 2013th position?

- (A.) 3
- (B.) 4
- (C.) 5
- (D.) 6
- (E.) 7

All one and two digit numbers require 189 digits 2013 - 189 = 1824, and 1824 = 3 * 608. This is how many

three-digit numbers we need to count off 4208 (1429) 5778 (d) 2573 (line) 9257 (e) 608 (28.) -3d) -257(372(digi291.38